

The following Listing of Claims will replace all prior versions, and listings, of claims in the application.

LISTING OF CLAIMS:

1. (Previously Presented) A multi-plate clutch device for transmitting and cutting off, with respect to an output rotor, power from an engine input rotor, the multi-plate clutch device comprising:

a clutch disk assembly being coupled to the output rotor and disposed near the input rotor; and

a clutch cover assembly being coupled to the input rotor and including a pressure plate to press the clutch disk assembly towards the input rotor, the clutch disk assembly having

a hub being coupled to the output rotor,

a friction coupler being disposed at an outer peripheral side of the hub and being nipped between the input rotor and the pressure plate, and

a damper mechanism elastically coupling the hub and the friction coupler in a rotation direction,

the friction coupler having

a ring member being coupled to an outer peripheral side of the damper mechanism,

a plurality of first friction plates being disposed at an outer peripheral side of the ring member and engaged with the ring member to be relatively unrotatable and to be relatively movable in an axial direction, and

a second friction plate being disposed between the plurality of first friction plates and being engaged with the clutch cover assembly to be relatively unrotatable and to be relatively movable in the axial direction, at least one of the plurality of first friction plates being configured by a carbon composite material.

2. (Original) The multi-plate clutch device of claim 1, wherein at least any one of the input rotor, the pressure plate and the second friction plate is configured by a carbon composite material.

3. (Previously Presented) The multi-plate clutch device of claim 1, wherein the hub includes a flange portion that projects outward in a radial direction around the entire periphery of the hub and a plurality of housing portions formed by part of the flange portion being cut out, and

the damper mechanism is disposed with a plurality of elastic members housed in the housing portions and a pair of coupler plates that are disposed to be relatively rotatable with respect to the flange portion in a state where the coupler plates nip the flange portion in the axial direction, with the coupler plates being disposed with window hole portions at positions corresponding to the elastic members.

4. (Previously Presented) The multi-plate clutch device of claim 1, wherein the ring member includes a plurality of outer teeth formed around the entire outer

peripheral side of the ring member and projects outward in the radial direction, and
the first friction plates include a plurality of inner teeth that is formed around the entire inner peripheral sides of the first friction plates and engages with the outer teeth.

5. (Previously Presented) The multi-plate clutch device of claim 4, wherein the ring member includes projecting portions that are disposed between the plurality of first friction plates and project further outward in the radial direction from the outer teeth.

6. (Previously Presented) The multi-plate clutch device of claim 1, wherein
the clutch cover assembly includes an annular clutch cover and cover members that are multiply disposed in the rotation direction and couple together the input rotor and the clutch cover, and

the second friction plate includes a plurality of notch portions that engage with the cover members.

7. (Previously Presented) The multi-plate clutch device of claim 3, further including fixing members that fix a part of the inner peripheral side of the ring member in a state where the part of the inner peripheral side of the ring member is nipped between the outer peripheral sides of the pair of coupler plates.

8. (Previously Presented) The multi-plate clutch device of claim 3, wherein
the ring member includes a plurality of first engagement portions that project inward

in the radial direction, and

the flange portion includes second engagement portions that project outward in the radial direction and contact with the first engagement portions when the second engagement portions rotate a predetermined relative angle.

9. (Previously Presented) The multi-plate clutch device of claim 7, wherein each fixing member includes a body portion having a cylindrical shape, head portions that are disposed at both ends of the body portion and have a larger outer diameter dimension than that of the body portion, and a stepped portion that is disposed between the body portion and one of the head portions and has a larger outer diameter dimension than that of the body portion and a smaller outer diameter dimension than that of the head portion.

10. (Previously Presented) The multi-plate clutch device of claim 7, wherein each fixing member includes a body portion having a cylindrical shape, head portions that are disposed at both ends of the body portion and have a larger outer diameter dimension than that of the body portion, and a tapered portion that is disposed between the body portion and one of the head portions and has an outer diameter dimension that gradually becomes larger from the body portion towards the head portion.

11. (Previously Presented) The multi-plate clutch device of claim 1, wherein

at least one of the input rotor, the pressure plate and the second friction plate is made of a material containing iron as a main ingredient.

12. (Previously Presented) The multi-plate clutch device of claim 1, further comprising

a release device engaged with the first biasing member axially and elastically deforming the first biasing member, wherein

the release device axially moves towards the input rotor to release the biasing force applied by the first biasing member to the pressure plate.

13. (Previously Presented) The multi-plate clutch device of claim 1, further comprising

a release device engaged with the first biasing member axially and elastically deforming the first biasing member, wherein

the release device axially moves away from the input rotor to release the biasing force applied by the first biasing member to the pressure plate.

14. (Previously Presented) The multi-plate clutch device of claim 1, further comprising

a second biasing member located between said input and output rotors, and having an elastic reaction force smaller than a pushing load applied to said first friction plate for power transmission.

15. (Previously Presented) The multi-plate clutch device of claim 14, wherein

the second biasing member is arranged between the first biasing member and the pressure plate.

16. (Previously Presented) The multi-plate clutch device of claim 3, further comprising

an annular friction member arranged between at least one of the coupler plates and the flange portion to receive an axial load exerted between the coupler plate and the flange portion.

17. (Previously Presented) The multi-plate clutch device of claim 3, further comprising

an annular third biasing member arranged between at least one of the coupler plates and the flange portion to apply an axial biasing force between the coupler plate and the flange portion.

18. (Previously Presented) The multi-plate clutch device of claim 17, wherein

the third biasing member is formed of an axially and elastically deformable Belleville spring.

19. (Previously Presented) The multi-plate clutch device of claim 17, wherein

the third biasing member is formed of an axially and elastically deformable wavy spring.

20. (Previously Presented) A clutch disk assembly for transmitting and

intercepting a power from a flywheel on an engine side to an input shaft of a transmission, comprising:

a friction plate being made of carbon and pressed against the flywheel;

a clutch disk body having a disk-like input portion having an outer periphery portion coupled to an inner peripheral portion of the friction plate, and an output portion coupled to the input shaft of the transmission; and

a plurality of fixing units directly coupling the outer peripheral portion of the disk-like input portion to the inner peripheral portion of the friction plate.

21. (Withdrawn) The clutch disk assembly of claim 20, wherein the friction plate has a recess for inserting said fixing unit, and the fixing unit has

a flange portion being in contact with a side surface of the friction plate to restrict the relative axial movement of the friction plate,

a trunk portion inserted into the recess of the friction plate, having a thickness corresponding to the thickness of the friction plate and having an end surface partially in contact with a side surface of the disk-like input portion, and

a fixing portion formed at an end remote from the flange portion, and fixed to the disk-like input portion.

22. (Withdrawn) The clutch disk assembly of claim 20, wherein the fixing unit is a rivet, and the fixing portion is fixed by caulking.

23. (Withdrawn) The clutch disk assembly of claim 20, wherein

the friction plate has a recess to accommodate the fixing unit, and

the fixing units are formed of

a first fixing unit having a trunk portion inserted into the recess of the friction plate,

a second fixing unit having a shaft portion axially extending through the first fixing unit,

a flange portion formed at one end of the shaft portion and axially engaging with the friction plate, and

a fixing portion formed at the other end of the shaft portion and axially engaging with the disk-like input portion.

24. (Previously Presented) The clutch disk assembly of claim 20, wherein the friction plates are arranged in two positions on axially opposite sides of an outer peripheral portion of the disk-like input portion, respectively, and have recesses for inserting the fixing unit and

the fixing units are formed of

a first fixing unit having a trunk portion inserted into the recess of the friction plate, and

a second fixing unit having a shaft portion axially extending through the first fixing unit and the disk-like input portion,

a flange portion formed on one end of the shaft portion and axially engaging with one of the friction plates, and

a fixing portion formed on the other end of the shaft portion and axially engaging with the other friction plate.

25. (Withdrawn) The clutch disk assembly of claim 23, wherein the second fixing unit is a rivet, and the fixing portion is fixed by caulking.

26. (Previously Presented) The clutch disk assembly of claim 20, wherein the friction plate has a recess to accommodate the fixing unit, and the fixing units are formed of a first fixing unit having a trunk portion inserted into the recess of the friction plate, having a thickness corresponding to the thickness of the friction plate and having an end surface partially in contact with a side surface of the disk-like input portion, and a fixing portion fixed to the disk-like input portion, and

a second fixing portion having a flange portion axially engaging with the friction plate, and a coupling portion coupling the flange portion and the first fixing unit together.

27. (Previously Presented) The clutch disk assembly of claim 20, wherein the friction plate has a recess for inserting the fixing unit; and the fixing units are formed of

a first fixing unit having a trunk portion inserted into the recess of the friction plate, and

a second fixing portion having a flange portion axially engaging with the friction plate, a coupling portion axially extending through the first fixing unit and fixing the flange portion to the first fixing unit, and

a fixing portion formed at an end of the coupling portion remote from the

flange portion, and coupling said first fixing unit to the disk-like input portion.

28. (Withdrawn) The clutch disk assembly of claim 21, wherein
the trunk portion has an axial length equal to or longer than the thickness of the
friction plate.

29. (Withdrawn) The clutch disk assembly of claim 21, wherein
the recess of the friction plate has a pair of parallel side surfaces extending in a radial
direction, and
the trunk portion of the fixing unit has a pair of flat surfaces to contact with the pair of
side surfaces.

30. (Withdrawn and Currently Amended) The clutch disk assembly of
claim 29, wherein
spaces are ensured between the pair of ~~plat~~ flat surfaces formed at the trunk portion of
the fixing unit and the pair of side surfaces of the recesses of the friction plate.

31. (Withdrawn) The clutch disk assembly of claim 22, wherein
the fixing unit further has an annular member arranged between the friction plate and
at least one of the flange portion and the fixing portion.

32. (Withdrawn) The clutch disk assembly of claim 31, wherein
the annular member has an outer diameter larger than the circumferential width of the
recess of the friction plate.

33. (Withdrawn) The clutch disk assembly of claim 23, further comprising an annular coupling member being configured to couple the plurality of fixing units, wherein

the coupling member is arranged between the friction plate and the flange portion.

34. (Previously Presented) The clutch disk assembly of claim 20, wherein the clutch disk body includes

a hub serving as the output portion and having a boss coupled to the input shaft of the transmission and a flange portion extending radially from the boss, and

a disk-like input plate arranged on a side of the flange portion of the hub and serving as the disk-like input portion.

35. (Previously Presented) The clutch disk assembly of claim 34, wherein the disk-like plate is arranged to rotate within a predetermined angular range with respect to the flange portion of the hub, and

the clutch disk body further includes a damper portion circumferentially and electrically coupling the disk-like input plate and the flange portion of the hub.